vivapolis
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THE CREATIVE BANKS OF THE ESCAUT RIVER

TERRITORY COMMENDED FOR EXCELLENCE IN ENERGY POOLING

LES RIVES CRÉATIVES DE L'ESCAUT

26 hectares at the heart of the Valenciennes Metropolican Area, a former industrial fallow land (ex-Vallourec site), later granted ZAC status, achieving high energy and environmental performance. By pooling their needs and re-using the fatal energy generated by the Data Center, Vallourec's former drilling site was re-conditioned, creating a virtuous circle and making it possible to do without fossil fuel energy consumption entirely.

KEY DATA

- **A truly multi-faceted development programme (93,000 m²)**
  - Digital Greenhouses
  - The Convention Centre
  - The Data Centre
  - Student housing
  - Offices and Shops
- **A geothermal plant (2MW)**
- **Industrial, re-conditioned drilling units**
- **A temperate water loop enabling re-use of the Data Centre's fatal heat**

INNOVATIONS

- An up-to-date comprehensive cost study that takes into account ZAC development programme phasing (optimising offer and energy demand) As existing drilling facilities were re-used, investment were cut
- A technical first for a ZAC

Fatal energy from the Data Center was recovered to supply an entire ZAC and carve out a **100% sustainable project (ENR&R),** 70% of CO2 emissions were cut by 70% and ultra-deep geothermal energy and direct-exchange were used to concurrently satisfy heating and cooling needs.

- Support was also provided to real estate developers to etch out a virtuous circle for the project.

STAKEHOLDERS

- **Project Manager:**
  La communauté d'agglomération de Valenciennes.
- **Upstream study:**
  - Regulatory paperwork: TPFi
  - Technical, legal and financial feasibility: IFPEB - TPFi - PARME Avocats
- **Project Management Assistance and Public Service Delegation:** TPFI and PARME Avocats
- **Project Management Assistance to real estate developers:** TPFi and ANTEA
- **Project Manager:** TPFi (co-creative engineering)
- **Operator:** Groupement ENGIE et Eau &Force

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MINISTÈRE DE L'ENVIRONNEMENT, DE L'ÉNERGIE ET DE LA MER
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IMPLEMENTATION

- The public authorities were committed to **re-conditioning this former industrial site** and turn it into an excellence area for digital creation, and sustainable and intelligent territory **(thermal smart grid)**.
- Detailed upstream studies, with multiple scenarios reviewed, so as to give the project manager as many well-suited options as possible, from the technical, financial and legal standpoints
- **A multi-disciplinary approach and commitment to pooling energy**

A decision-making assistance tool

- **Support was provided throughout to the real estate developers** so that they understood every aspect of the cycle and could plan for compatible facilities

> *The Creative Banks of the Escaut ZAC, a truly sustainable and smart neighbourhood spans 26 hectares and multi-faceted programme combining many functions: housing, a city park, companies, offices, world-renowned schools, shops, and B-to-B firms. With a geothermal grid put to work across the site, the project became a living example of dynamic and sustainable energy management. The grid recovers fatal energy from the Data Center, the key component of the thermal smart grid.*
> *Secondary energy systems guaranteed to be compatible and optimised in the buildings connected to the geothermal loop, energy supply exactly tuned to building needs, and a design fostering energy efficiency and low-intensity consumption: all of these were key features in the project*

RESULTS

/// Economic attractiveness:

ENR&R in place across the ZAC, energy spending completely under control, multi-use programme

/// Environmental conservation and enhancement

- An industrial fallowland was turned into a high-performance urban site
- Environmental footprint reduction: renewable energies (75%) and recovered energies (25%), energy pooling, geo-cooling, lower GHG emissions (CO_2 < 50 g/kWh)

/// Responsible use of resources

Shallow geothermal technology and reinjection into water table

/// Well-being

- Comfortable heating in buildings
- Sustainable transport (tram)
- Landscaped park

Winner of the EU's «Territorial Excellence» call for projects

FINANCIAL ASPECT OF THE OPERATION

/// Won the Energy Users' Award for highly competitive energy well-managed over time

/// Investments, operating expenses and maintenance costs all shared

/// New business model

KEY DATA

- 6 300 MWHh/year
- CO2 < 50 g/kWh
- First 100%ENR&R project in France

L'INGÉNIERIE CO-CRÉATIVE

VALENCIENNES METROPOLE

IFPEB

ANTEA Ingénierie et Conseil

PARME AVOCATS